

(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Takanori KAWAI et al.

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For: CONDITIONING AGENT FOR FRY FOOD

Examiner: Chawla, Jyoti

DECLARATION UNDER 37 CFR 1.132

COMMISSIONER FOR PATENTS
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Sir:

I, Hiromichi KOUNO, residing in Mie-ken, Japan, hereby declares and states as follows:

1. I am one of the co-inventors of U.S. Application Serial No. 10/565,383 filed on January 23, 2006, entitled CONDITIONING AGENT FOR FRY FOOD. I am thoroughly familiar with the contents of said Application, its prosecution before the United States Patent and Trademark Office and the references cited therein.

2. I am a graduate of University of Fukui, Faculty of Engineering and received a bachelor's degree in the year 1998, majoring in material chemistry.

3. I have been employed in Taiyo Kagaku Co., Ltd. in the year 1998 and have been assigned to the Research Laboratories in the year 2001.

4. I have been involved in the research and development of fry foods since 2001.

5. The following experiments were conducted by myself or under my direct supervision and control in order to verify that a remarkable difference in an effect of suppressing oil absorption between alginic acid and alginic acid ester measured under the same conditions.

METHODS

Specifically, an alginic acid powder or an alginic acid ester powder were prepared according to the following methods, and a doughnut was produced from each powder pulverized to an average particle size of 20 μm or less. Subsequently, the resulting doughnuts were evaluated for oil absorption, mouthfeel and taste as detailed below.

PREPARATION EXAMPLES FOR POWDERS

Powders of alginic acid and alginic acid ester were prepared in accordance with Example 3 of the present specification.

Specifically, 25 kg of alginic acid (average particle size: 36.33 μm , manufactured by KIMICA Corporation) was formed into fine powders with a freeze pulverizer (manufactured by Hosokawa Micron Corporation) under the conditions of a pulverization temperature of -100°C and a peripheral speed of a rotor of 73 m/sec, to

give 24.8 kg of an alginic acid powder pulverized product having an average particle size of 19.12 μm (hereinafter referred to as Powder A).

In addition, the same procedures as above were carried out except that 25 kg of alginic acid ester (average particle size: 59.04 μm , manufactured by KIMICA Corporation) was used in place of alginic acid, to give 24.2 kg of an alginic acid ester powder pulverized product having an average particle size of 18.62 μm (hereinafter referred to as Powder AE).

PREPARATION OF DOUGHNUTS

Five grams of each of Powder A and Powder AE obtained above were combined with 700 g of strong flour, 300 g of soft flour, 10 g of baking powder, 50 g of an yeast, 1 g of an yeast food, 15 g of table salt, 80 g of sugar, 20 g of skim milk powder, 100 g of whole egg, and 100 g of shortening into a homogeneous mixture, and 520 g of water was then added thereto. The ingredients were mixed and kneaded, and the dough was raised for 30 minutes. Thereafter, the dough was divided into 50 g portions, and molded into a ring shape. After molding, the divided portions were set aside for 15 minutes, and then placed in a mold and subjected to final proof at 32°C and 60% humidity for 30 minutes. Subsequently, the dough was deep-fried in palm oil at about 180°C for 4 minutes, to give each of doughnuts (hereinafter respectively referred to as "Product A" and "Product AE").

EVALUATIONS OF OIL ABSORPTION, MOUTHFEEL AND TASTE

The oil absorption of the resulting doughnuts was evaluated in the same manner as in Test Example 1.

Specifically, the oil absorption of the dough obtained was evaluated by determining the oil content in the obtained doughnut (% by weight). The lower the oil content in the doughnut, the lower the oil absorption of the dough. When 10 minutes passed from frying, the weight of the doughnut [A (g)] was determined. Thereafter, the doughnut was dried at 105°C for 2 hours to remove water therefrom, an oil component was extracted from the dried doughnut with petroleum ether, and the oil component was filtered and concentrated to determine the amount of oil [B (g)]. The oil content in the doughnut was obtained from the following formula:

$$\text{Oil content in the doughnut (\% by weight)} = \frac{B}{A} \times 100$$

In addition, the doughnut was evaluated by 20 panelists for mouthfeel and taste.

The evaluation results for mouthfeel and taste are shown as an average score of 20 panelists wherein those that are highly excellent are ranked 10 points; those that are notably excellent are ranked 9 points; those that are excellent are ranked 8 points; those that are fair are ranked 7 points; those that are somewhat poor are ranked 6 points; those that are notably poor are ranked 5 points; and those that are very poor are ranked 4 points.

RESULTS

The above results are summarized in Table A.

Table A			
	Oil Content in Doughnut (% by weight)	Mouthfeel	Taste
Product A	12.8%	9.2	8.5
Product AE	20.2%	6.5	6.2

It can be seen from Table A, the doughnut produced from Powder A (Product A) has excellent mouthfeel and taste, giving soft feel and excellent dissolvability in the mouth, whereas the doughnut product from Powder AE (Product AE) has worsened mouthfeel and taste, giving poor dissolvability in the mouth and moist mouthfeel.

DISCUSSION

It is evident from the above results that the doughnut produced from an alginic acid powder pulverized product is more excellent in all the oil absorption suppressive effect, the mouthfeel, and the taste than those of the doughnut produced from an alginic acid ester powder pulverized product.

Statement Under 18 U.S.C. § 1001

The undersigned petitioner declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

Hiromichi KOUNO
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September 14, 2009
Date